Open Access

EDITORIAL

Assistive Technology: Making Choices and Digital Accessibility

E.A. Draffan [1]

[1]WAIS, ECS, University of Southampton United Kingdom
Address of Correspondence
ead@ecs.soton.ac.uk

Whatever field you are working in, you will have come across Assistive Technology (AT). We all use some form of AT and often we have come to depend on it. It is the technology that helps us do things more easily and can even make us more productive in our working lives. It may be a spell checker in our word processor or word prediction on our mobile phone, a remote control on a television or just a pair of glasses.[1] The World Health Organisation has given us goals in their 2030 Agenda for Sustainable Development, with technology and innovation being central to its implementation. If we can create the necessary strategies, we can make this happen in the world of assistive technology, in order to reduce barriers and enhance access to many aspects of daily life for those with disability and age-related impairments.

However, there is a cost involved, whether this relates to developing or purchasing the technologies or access to the knowledge and skills to learn how to use them. There are issues around making choices that suit local social settings, cultures, language and environments. Nevertheless, whatever situation we find ourselves in, we can discuss the idea of an AT journey taken along a "**STREET**" where we are thinking about the '**Strengths**' of the individual that we wish to support in their use of technology rather than their disability. Their strengths may be visual, auditory, kinaesthetic or about dexterity and mobility, cognition and processing. They may also include the ability to understand and express oneself in speech and language or how much stamina they have. These are personal to the potential user of AT and are well known to those of us who carry out assessments prior to giving any therapy. Then we have to think of the '**Tasks**' that someone is going to undertake, whether this is about reading and writing, daily living or a specific duty in the workplace. We have to explore the '**Resources**' that a person can bring to the situation and this is where we look at finances and procurement, the type of training they might need, the support of peers and family, as well as our own professional need for support and technical assistance. This means that the idea of '**Expertise**' although mainly related to the potential AT user might also involve the prior knowledge of the professional. There may be the need to offer very specialist support, such as Alternative and Augmentative forms of communication (AAC) using particular types of symbol systems and AAC devices or in-depth knowledge about a specific type of orthotics. For both the user and the trainer, issues of confidence may come into play and an ability to be willing to learn new skills. Crucially the '**Environment**' within which the technologies will be used also has to be taken into consideration. There may be accessibility constraints within a rural environment verses an environment with security and information technology policies, which prevent the use of certain applications. Finally, the '**Tools**' which are the assistive technologies, from access and productivity technologies to telecare and telehealth. Chosen carefully they can all be empowering.

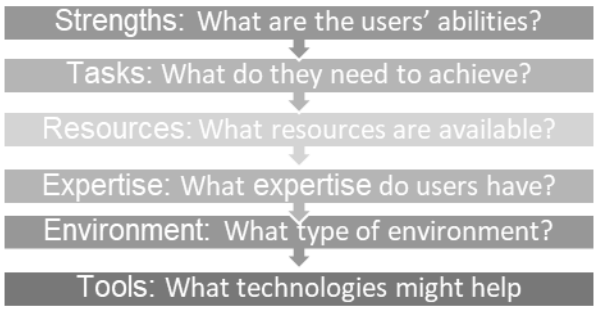

Figure 1. STREET Model for selecting & evaluating assistive technologies (Draffan et al, 2016)[2]

There are many assistive technologies that are specifically designed for particular types of disability but the world of ubiquitous technology[3] has grown

exponentially and with it a growing demand for greater built-in assistive technologies. This means more technologies that we buy have aspects of their systems that can enable us to use them without having to purchase extra access applications or devices. If it is possible to afford a smartphone, an English-speaking blind person can use built-in screen reader support, mapping guidance to travel around their environment, apps to discern different colours and time management tools with alerts to help with everyday activities. These devices can allow us to control objects in our homes with voice commands as well as communicate with families and colleagues across the world.

Access to the internet has opened up a world of knowledge and we can make use of many free learning and teaching resources about the use of assistive technologies, but these materials have to be digitally accessible.[4] That means developed in a way that makes it possible for assistive technologies to work with the content, so that once again we do not introduce barriers to inclusion. Over the years, there have been standards that have been developed for making accessible web content[5] and we can apply them to our work as Healthcare professionals. Thinking about the types of resources we use on the Internet might help us to understand a little more about digital accessibility. We like to use images, watch video presentations and read articles, but if you are blind and using a screen reader, you need to hear a description about the image and perhaps read a transcript or listen to an audio description about a video. You may need captions if you have a hearing impairment and depend on the clear layout with easy to read text and symbols if you have cognitive or communication impairments. These are not difficult elements to include whenever we think about sharing knowledge. In fact, they are probably easier to solve than accessibility issues generally seen in the environment, such as a lack of curb cuts, access to buildings and transport difficulties faced by wheelchair users who experience innumerable barriers to participation.

Assistive technology is changing, becoming more embedded in our daily lives and we need to be aware of its power and ability to enhance the lives of those with disabilities. However, we also need to ensure that it fits the requirements of its users, our environment and the skills available. Making it too complex and costly will not only cause issues, but also prevent its adoption. Furthermore, if we do not address the problems of accessibility, whether they are in the environment or online and fail to support knowledge building in this field of technology, we cannot expect AT to serve us in the way its developers intended.

References

1. http://www.who.int/phi/implementation/assistive_technology/EMP_PHI_2016.01/en/
2. Draffan, E.A., James, A., Wald, M. and Idris, A., 2016. Framework for selecting assistive technology user-participation methods. Journal of Assistive Technologies, 10(2), pp.92-101.
3. https://ubicomp.ucsd.edu/research/ubihealth/
4. https://www.jisc.ac.uk/guides/getting-started-with-accessibility-and-inclusion
5. https://www.w3.org/WAI/gettingstarted/